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EXAMINER
QUAN, ELIZABETH S

ART UNIT	PAPER NUMBER
1743	20

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/619,416	ERDEN ET AL.	
	Examiner	Art Unit	
	Elizabeth Quan	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *27 May 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-37 and 42-53* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *19 and 47* is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) *20,26,36,48 and 50* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *19* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Objections

1. Claims 3 and 4 are objected to because of the following informalities: They are dependent on a cancelled claim. Appropriate correction is required. For examining purposes, claims 3 and 4 are dependent on claim 1.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

2. Claims 17, 18, 20-26, 31-37, 42-46, 48-51 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Referring to claim 17, 42, it is unclear how the flow passageways provide a primary flow passage. Do all the flow passageways in totality provide a primary flow passage? Do all the flow passageways lead to a primary flow passage?

4. Referring to claim 31, it is unclear what cavity of the base member is being referred to. Is it referring to groove (60) or opening (52)? If so, neither the groove (60) nor opening (52) comprise of reaction wells. Is it referring to the internal cavity formed by the base and cover when put together? If so, there is a lack of antecedent basis since later on in the claim it recites that the base member and cover form a pressure chamber. Also, it is unclear the cover is not in sealing engagement with the pressure chamber. It appears that the cover is in sealing engagement with the base to form the pressure chamber.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 17, 18, 21-25, 31, 33-35, 37, 42-46, 49, 51 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,324,483 to Cody et al.

Referring to claims 17, 18, 21-25, 31, 33-35, 37, 42-46, 49, 51, Cody et al. disclose an apparatus for multiple, simultaneous synthesis of compounds (10) (see ABSTRACT; FIGS. 2, 4, and 5; COL. 7, lines 37-39). A base (15) having a cavity with a plurality of reaction wells (16) is formed in the upper surface of the base and extending partially therethrough (see FIGS. 2, 4, and 5; COL. 8, lines 23-26). Each of the reaction wells (16) has a closed lower end defined by the base (15) and an open upper end for receiving components for the reaction (see FIGS. 2, 4, and 5). A plurality of vials (11) is inserted into the wells (16) for receiving reaction components (see FIGS. 2, 4, and 5; COL. 8, lines 38-45). A cover (20) is configured for sealing engagement with the base (15) to form a housing enclosing the reaction wells (16) and defining a common pressure chamber in communication with the reaction wells (16) (see FIGS. 2, 4, and 5; COL. 9, lines 16-36; COL. 10, lines 33-37). The cover is removably attached to the base member with quick operating fastening devices (35,36) (see COL. 10, lines 13-37).

A flow restriction device (26) is positioned adjacent to the open ends of the reaction wells (16) aligning the vent holes with the wells to provide communication

between the wells and pressure chamber while reducing cross-talk between the wells (see FIGS. 2, 4, and 5; COL. 9, lines 42-61). The flow restriction device (26) is removably attached to the base (15) with fastening means (35,36) (see FIGS. 2, 4, and 5; COL. 10, lines 13-37). The flow restriction device (26) may be a rigid elastomeric, solvent-resistant sheet from rubbers, such as neoprene, silicone, or VITON (see COL. 9, lines 58-61). The sheet has holes, lending it porous (see FIGS. 2, 4, and 5).

An inlet port (23) is in communication with the pressure chamber for supplying pressurized fluid to the chamber to pressurize the reaction wells (16) (see FIGS. 2, 4, and 5; COL. 9, lines 27-34). The housing is made of materials (metals) capable of sustaining a pressure substantially above atmospheric pressure as required for organic synthesis (see COL. 8, lines 29-38; COL. 9, lines 25-27 and 34-36).

Therefore, Cody et al. includes all the limitations in claims 17, 18, 21-25, 29, 31, 33-35, 37, 42-46, 49, 51.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 3, 4, 10, 29, 52, 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,324,483 to Cody et al. in view of U.S. Patent No. 5,428,118 to Painter et al., "Investigation of Coolant Mixing in Pressurized Water Reactors at the Rossendorf Mixing Test Facility Rocom" to Grunwald et al., and "Runaway in Stirred Tanks" to Heiszwolf.

Referring to claims 1, 3, 4, 10, 29, 52, 53, Cody et al. disclose an apparatus for multiple, simultaneous synthesis of compounds (10) (see ABSTRACT; FIGS. 2, 4, and 5; COL. 7, lines 37-39). A base (15) with a plurality of reaction wells (16) formed in the upper surface of the base and extending partially therethrough (see FIGS. 2, 4, and 5; COL. 8, lines 23-26). Each of the reaction wells (16) has a closed lower end defined by the base (15) and an open upper end for receiving components for the reaction (see FIGS. 2, 4, and 5). A plurality of vials (11) is inserted into the wells (16) for receiving reaction components (see FIGS. 2, 4, and 5; COL. 8, lines 38-45). A cover (20) is configured for sealing engagement with the base (15) to form a housing enclosing the reaction wells (16)

and defining a common pressure chamber in communication with the reaction wells (16) (see FIGS. 2, 4, and 5; COL. 9, lines 16-36; COL. 10, lines 33-37). The cover is removably attached to the base member with quick operating fastening devices (35,36) (see COL. 10, lines 13-37).

A flow restriction device (26) is positioned adjacent to the open ends of the reaction wells (16) aligning the vent holes with the wells to provide communication between the wells and pressure chamber while reducing cross-talk between the wells (see FIGS. 2, 4, and 5; COL. 9, lines 42-61). The flow restriction device (26) is removably attached to the base (15) with fastening means (35,36) (see FIGS. 2, 4, and 5; COL. 10, lines 13-37). The flow restriction device (26) may be a rigid elastomeric, solvent-resistant sheet from rubbers, such as neoprene, silicone, or VITON (see COL. 9, lines 58-61). The sheet has holes, lending it porous (see FIGS. 2, 4, and 5).

An inlet port (23) is in communication with the pressure chamber for supplying pressurized fluid to the chamber to pressurize the reaction wells (16) (see FIGS. 2, 4, and 5; COL. 9, lines 27-34). The housing is made of materials (metals) capable of sustaining a pressure substantially above atmospheric pressure as required for organic synthesis (see COL. 8, lines 29-38; COL. 9, lines 25-27 and 34-36).

Cody et al. disclose a housing from transparent material such as plexiglass. Cody et al. do not quantify internal pressures within the reactor. Painter et al. disclose a plexiglas reactor configured to withstand 10 psi to about 1000 psi (see COL. 5, lines 24-26; COL. 7, lines 40-68). Painter et al. address the issue of carrying out operations requiring elevated pressures and/or handling reactive materials at elevated pressures.

However, Painter et al. do not explicitly disclose the use of transparent plexiglass; however, it is well known to use a transparent plexiglass to allow observation of reactions as evidenced by Grunwald et al. and Heiszwolf. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the synthesis apparatus disclosed by Cody et al. to allow operating pressures as high as 1000 psig as necessary for particular operations and reactants in view of Painter et al. and permit visual observation of reactions as evidenced in Grunwald et al. and Heiszwolf.

3. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,324,483 to Cody et al. in view of U.S. Patent No. 5,428,118 to Painter et al., "Investigation of Coolant Mixing in Pressurized Water Reactors at the Rossendorf Mixing Test Facility Rocom" to Grunwald et al., and "Runaway in Stirred Tanks" to Heiszwolf as applied to claim 1 above, and further in view of U.S. Patent No. 3,617,033 to Ichikawa et al.

Referring to claim 5, Cody et al. in view of Painter, Grunwald et al., and Heiswolf do not specifically state titanium as a material for reactor construction. Ichikawa et al. disclose an experiment using a titanium pressure vessel (see COL. 8, lines 6). While Ichikawa et al. do not explicitly state why the pressure vessel is made from titanium, it appears titanium can withstand high pressures and is corrosion resistant. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the synthesis apparatus disclosed by Cody et al. in view of Painter, Grunwald et al., and Heiswolf from titanium for the advantages of withstanding high pressures and corrosion resistance in the event the internal reactor vessels rupture.

4. Claims 6, 7, 9, 11, 12, 16, 27, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,324,483 to Cody et al. in view of U.S. Patent No. 5,428,118 to Painter et al., "Investigation of Coolant Mixing in Pressurized Water Reactors at the Rossendorf Mixing Test Facility Rocom" to Grunwald et al., and "Runaway in Stirred Tanks" to Heiszwolf as applied to claims 1, 17, 25, 42, and 49 above, and further in view of U.S. Patent No. 6,309,608 to Zhou et al.

Referring to claims 6 and 7, Cody et al. in view of Painter, Grunwald et al., and Heiswolf do not disclose using stainless steel and aluminum alloys for the cover of the apparatus. Zhou et al. disclose constructing the reaction block from stainless steel and aluminum alloys, which are readily machined and exhibits high thermal conductivity (see COL. 11, lines 36-46). Zhou et al. do not address the cover; however, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make both the cover and base disclosed by Cody et al. in view of Painter, Grunwald et al., and Heiswolf from a single material selected from stainless steel or aluminum alloys for the advantages of ease in machining and high thermal conductivity.

Referring to claim 9, Cody et al. in view of Painter, Grunwald et al., and Heiswolf do not disclose a pressure relief valve coupled to an outlet port in communication with the pressure chamber. Zhou et al. disclose venting the reaction block through a pressure relief valve (see COL. 21, lines 37-40). Furthermore, pressure-control means are provided in the purge gas exit line to control the pressure within the reaction block to avoid pressure buildup and safety hazards (see COL. 21, lines 41-44). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was

made to include a pressure relief valve to an outlet port in communication with the pressure chamber as in Zhou et al. to the apparatus of Cody et al. in view of Painter, Grunwald et al., and Heiswolf to avoid pressure buildup and the associated hazards.

Referring to claim 11, Cody et al. in view of Painter, Grunwald et al., and Heiswolf do not explicitly disclose external dimensions of the base and cover corresponding to standard microtiter plate dimensions. Zhou et al. disclose semi-automated or automated resin washing and reactant dispensing to selected reaction vessels within a standard microtiter plate with a footprint of 3-3/8" by 5" to enhance productivity of all phases of combinatorial synthesis (see COL. 10, lines 19-21; COL. 26, lines 20-56; COL. 27, lines 1-7). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Cody et al. in view of Painter, Grunwald et al., and Heiswolf to standardize the dimensions of the synthesis apparatus as in Zhou et al. to allow automation to enhance productivity.

Referring to claim 12, Cody et al. in view of Painter, Grunwald et al., and Heiswolf do not explicitly disclose 96 reaction wells arranged in an 8 by 12 array. Zhou et al. disclose transferring synthesized compounds in the first and second of a pair of 48-vessel reaction blocks to odd-numbered and even-numbered wells, respectively, to fill 96 wells (see COL. 58-64; FIG. 17A and 17B). Furthermore, it is well known in the art to use plates with 96 wells in a 12 by 8 array. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Cody et al. in view of Painter, Grunwald et al., and Heiswolf to use a plate

with 96 wells in a 12 by 8 array as in Zhou et al. to conform to convention to allow automation.

Referring to claim 16, Cody et al. do not address the spacing of the reaction wells. Zhou et al. disclose center-to-center spacing of wells in a standard 96-well plate to be about 9 mm (see COL. 28, lines 63-67; COL. 29, lines 1-3). Additionally, it is well known in the art to have 9 mm center-to-center spacing in a 96-well plate. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Cody et al. in view of Painter, Grunwald et al., and Heiswolf to use 9 mm center-to-center spacing among wells as in Zhou et al. to conform standards and allow automation configured to such standards.

Referring to claim 27, Cody et al. in view of Painter, Grunwald et al., and Heiswolf do not disclose a circumferential groove formed in one of the base and cover and a gasket disposed within the groove to provide a seal between the base and cover. Zhou et al. disclose the top seal between reaction block (100) and reaction block cover plate (200) through a single cover plate seal (210) by an O-ring that runs along the perimeters of the cover plate and reaction block (see COL. 14, lines 66 and 67; COL. 15, lines 1-3; FIG. 1). An O-ring groove (240) is provided for the O-ring either in the top surface of the reaction block (100) or bottom surface of cover plate (200) (see COL. 7-12; FIG 8B). Furthermore, a recess (244) may be cut into the underside of cover plate (200). Since the top of the reaction block (100) is slightly smaller than the recessed area, the reaction block just fits into the area to help position the cover plate on the reaction block (see COL. 12-18; FIG. 8B). Therefore, it would have been obvious to one having

ordinary skill in the art to modify the apparatus of Cody et al. in view of Painter, Grunwald et al., and Heiswolf include a groove in the base or cover as in Zhou et al. to fit the gasket within it to provide an effective seal and help locate the cover plate on the reaction block.

Referring to claim 28, Cody et al. in view of Painter, Grunwald et al., and Heiswolf do not disclose the base and cover each with a periphery flange configured for mating. Zhou et al. disclose a reaction base plate (300) with a recessed area (350) to contain the sliding seal plate (400) and reaction block (100) (see COL. 17, lines 53-61; FIG. 1 and 9). A portion of the reaction base plate (300) extends beyond the sliding seal plate (400) and reaction block (100), where reaction block closure posts (320) receive fasteners through through-holes (230) on the edge of the cover plate (200) to effect a tight seal (see COL. 15, lines 27). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Cody et al. in view of Painter, Grunwald et al., and Heiswolf to include periphery flanges as in Zhou et al. to effect a tight seal between the base and cover.

5. Alternatively, claim 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,324,483 to Cody et al. as applied to claim 42 above, and further in view of U.S. Patent No. 6,309,608 to Zhou et al.

Referring to claim 51, while the housing of Cody et al. is configured to sustain pressures substantially above atmospheric pressure, Cody et al. do not specifically address the pressure of the fluid for pressurizing the chamber. Zhou et al. disclose a small space or gap located between the top surface of the reaction block (100) and bottom

surface of the cover plate (200) permits fluid communication between the gas and vapor space and reaction chambers (110), facilitating pressure equalization above, below, and within the chambers (see COL. 15, lines 56-67; COL. 16, lines 1-7). Clamping or closure means, typically screw or bolt-type fasteners passing through through-holes, provide an effective seal between the cover plate and reaction block to allow internal reaction block pressures as high as several atmospheres as necessary for particular reactions (see COL. 15, lines 21-32). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Cody et al. to use fluid pressurized substantially above atmospheric pressure as in Zhou et al. as necessary to perform synthesis or screening.

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,324,483 to Cody et al. in view of U.S. Patent No. 5,428,118 to Painter et al., "Investigation of Coolant Mixing in Pressurized Water Reactors at the Rossendorf Mixing Test Facility Rocom" to Grunwald et al., and "Runaway in Stirred Tanks" to Heiszwolf as applied to claim 1 above, and further in view of U.S. Patent No. 5,529,756 to Brennan et al.

Referring to claim 8, Cody et al. in view of Painter, Grunwald et al., and Heiswolf do not disclose a quick release fitting coupled to the inlet port for connection to a pressure source. Cody et al. do disclose ports (23) on the sidewalls of the cover (20) for introducing or exhausting gas or liquid (see COL. 9, lines 27-34). It is both well known and obvious to provide a fitting for connection to the pressure source as evidenced by Brennan et al. Brennan et al. disclose an inlet tube (72) coupled to the gas inlet (70) for connecting the latter with a gas source to provide a positive pressure within the pressure

chamber without introducing oxygen from the environment (see FIG. 5; COL. 46-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include an inlet tube as disclosed by Brennan et al. coupled to the gas inlet of the apparatus of Cody et al. in view of Painter, Grunwald et al., and Heiswolf to provide a positive pressure in the chamber without introducing oxygen from the environment.

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,324,483 to Cody et al. in view of U.S. Patent No. 5,428,118 to Painter et al., "Investigation of Coolant Mixing in Pressurized Water Reactors at the Rossendorf Mixing Test Facility Rocom" to Grunwald et al., and "Runaway in Stirred Tanks" to Heiszwolf and U.S. Patent No. 6,309,608 to Zhou et al. as applied to claims 1, 11, and 12 above, and further in view of U.S. Patent No. 6,171,555 to Cargill et al.

Referring to claim 13, Cody et al. in view of Painter, Grunwald et al., Heiswolf, and Zhou et al. do not quantify the internal volume of the wells. Cargill et al. disclose each reaction chamber having an internal volume of approximately 2 ml. While Cargill et al. do not explicitly state why an internal volume of approximately 2 ml is used for each reaction chamber, Examiner takes Official Notice of the fact that wells with an internal volume of approximately 2 ml is conventional in the art. Furthermore, the internal volume of the well is not a patentable limitation, as the volume can be catered to the amount of sample. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Cody et al. in view of Painter, Grunwald et al., Heiswolf, and Zhou et al. to create wells with an

internal volume of approximately 2 ml as disclosed by Cargill et al. due to set standards and as necessary to contain the desired amount of sample.

8. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,324,483 to Cody et al. in view of U.S. Patent No. 5,428,118 to Painter et al., "Investigation of Coolant Mixing in Pressurized Water Reactors at the Rossendorf Mixing Test Facility Rocom" to Grunwald et al., and "Runaway in Stirred Tanks" to Heiszwolf as applied to claim 1 above, and further in view of U.S. Patent No. 6,309,608 to Zhou et al., U.S. Patent No. 6,027,694 to Boulton et al., and U.S. Patent No. 6,264,891 to Heynaker et al.

Referring to claim 14, Cody et al. in view of Painter, Grunwald et al., and Heiswolf do not explicitly disclose 12 reaction wells arranged in a 3 by 4 array. Zhou et al cite reaction blocks generally have from 12 to 96 or more reaction chambers (see COL. 10, lines 16-18). Boulton et al. disclose microplates with lower density wells are available as needed for the number of assays performed (see COL. 1, lines 53-57). While Boulton et al. and Zhou et al. do not mention the configuration of the wells, Heynaker et al. leave the option of array configuration of wells open (see COL. 6, lines 57-63). Heynaker et al. do not explicitly state why different arrays are used; however, it appears that configuration may be important for automation. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Cody et al. in view of Painter, Grunwald et al., and Heiswolf to use 12 wells as in Zhou et al., Boulton et al., and Heynaker et al. for completing lesser than or equal to 12 reactions in a 3 by 4 array to conform to automation equipment.

Referring to claim 15, Cody et al. in view of Painter, Grunwald et al., Heiswolf, Zhou et al., Boulton et al., and Heynaker et al. do not quantify the internal volume of the wells. Applying the decision made by the Federal Circuit in Gardner v. TEC Systems, Inc., the dimensions of the well would not affect the performance of the claimed device respective to prior art device. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the internal volume of the wells as necessary to produce the desired amount of product. Therefore, the claimed device is not patentably distinct from prior art device based on the internal volume of the wells.

9. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,324,483 to Cody et al. in view of U.S. Patent No. 5,428,118 to Painter et al., "Investigation of Coolant Mixing in Pressurized Water Reactors at the Rossendorf Mixing Test Facility Rocom" to Grunwald et al., and "Runaway in Stirred Tanks" to Heiszwolf

Referring to claim 30, Cody et al. in view of Painter, Grunwald et al., and Heiswolf do not quantify the volume of the pressure chamber. The Federal Circuit decided in Gardener v. TEC System, Inc. that difference of dimensions between prior art and claims would not make the claimed device perform differently than prior art device, and the claimed device is not patentably distinct from the prior art device. Furthermore, the applicant has not stated how a pressure chamber volume of 10 cubic inches solves any problems or is for any particular purpose. It appears that the synthesis apparatus would perform equally well with any pressure chamber volume. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was

made to use different pressure chamber volumes as necessary or desired for performing assays.

10. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,324,483 to Cody et al. in view of U.S. Patent No. 4,180,943 to Smith et al. and U.S. Patent No. 6,250,707 to Dinter et al.

Referring to claim 32, Cody et al. do not disclose a four bar mechanism for fastening the cover onto the reaction block. Smith et al disclose a four bar mechanism for an aircraft door, which forces the latch operation to be performed in correct order (see COL. 1, lines 29-38). Additionally, Dinter et al. disclose further advantages of simple, reliable mechanism with low production cost, high precision, and good functionality (see COL. 1, lines 51 and 52; COL. 2, lines 4-6). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a four bar mechanism as in Smith et al. and Dinter et al. for fastening a cover onto the reaction block for the apparatus of Cody et al. for advantages of simple, reliable mechanism with low production cost, high precision, and good functionality.

Allowable Subject Matter

5. Claims 19 and 47 are allowed.

6. Claims 20, 26, 36, 48, 50 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. Claims 20, 26, 36, 48, 50 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Arguments

8. Applicant's arguments with respect to claims 1, 3-18, 20-37, 42-46, 48-53 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Quan whose telephone number is (703) 305-1947. The examiner can normally be reached on M-F (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (703) 308-4037. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Elizabeth Quan
Examiner
Art Unit 1743

eq
August 7, 2003

Jill Warden
Supervisory Patent Examiner
Technology Center 1700